CUSTOMER SUCCESS STORY

A creative collaboration: OMRON mobile robots help improve the flow at Danfoss Power Solutions

Danfoss Power Solutions

Nordborg, Denmark

Increased efficiency

Improved ergonomics

Collaboration

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Key Benefits

1. **Zero manual handling** improves workplace ergonomics and safety
2. **Improved space efficiency** thanks to compact, automated storage and transport
3. **Flexible production capacity** that can ramp up or down as needed
4. **High automation level** integrating mobile, industrial and warehouse robots
5. **Recognised innovation** with a nomination for the DIRA Automation Award 2024

At a glance

At its Nordborg facility in Denmark, Danfoss Power Solutions collaborated with OMRON and partners to deploy an innovative robotic system integrating mobile robots, an AutoStore warehouse, and an industrial robot.

Faced with space constraints and the need to improve worker ergonomics, Danfoss replaced its traditional warehouse with a fully automated solution that eliminates manual lifting.

OMRON mobile robots now transport parts seamlessly, with zero human handling. The result: better use of factory space, increased automation, improved safety, and a scalable setup that adapts to changing order volumes, earning the project a nomination for the DIRA Automation Award 2024.

The challenge was that we experienced significant growth over the past year, which resulted in a lack of physical space on our factory floor. Expanding the building wasn't an option, so we had to come up with a smarter and more creative solution.

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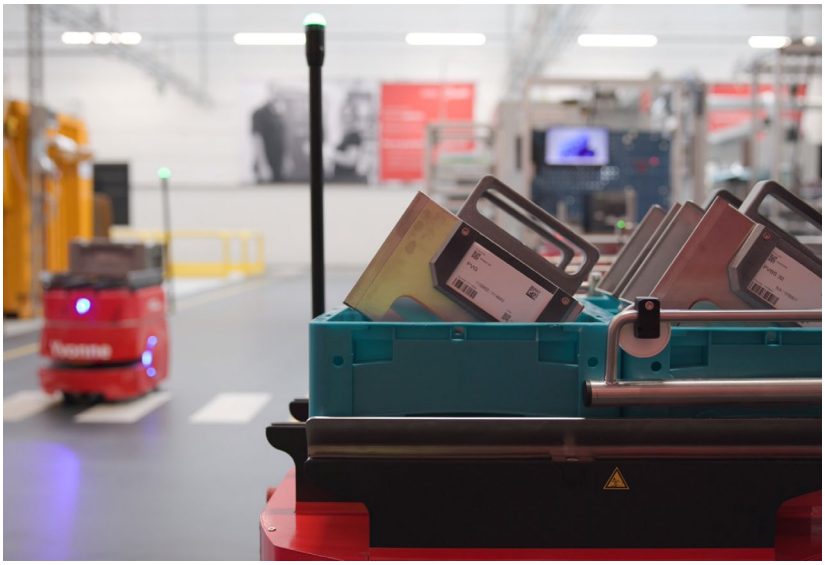
Autonomous mobile robots from OMRON play a key role in an innovative and ambitious automation solution that is gaining attention in Denmark. At Danfoss Power Solutions, these mobile robots work alongside with an industrial robot and AutoStore robot warehouse system to improve the working environment and increase productivity.

Danfoss Power Solutions develops mobile hydraulics for the construction industry, agriculture, and other sectors. The company designs and manufactures a comprehensive range of engineered components and systems. These include hydraulics, electrification solutions, fluid conveyance, electronic controls, and software. Their facility in Nordborg, Denmark, serves as the company's global headquarters and is a central hub for their manufacturing operations. Here you'll find a unique automation solution that stands out in the industry.

Two OMRON LD mobile robots operate together with an AutoStore warehouse automation system and an industrial robot in a solution that has provided Danfoss Power Solutions with clear benefits. The project has also been widely recognised, including a nomination for the respected DIRA Automation Award 2024.

"*The challenge was that we experienced significant growth over the past year, which resulted in a lack of physical space on our factory floor. Expanding the building wasn't an option, so we had to come up with a smarter and more creative solution*," says Martin Ole Madsen, Manager Operations Excellence at Danfoss Power Solutions.



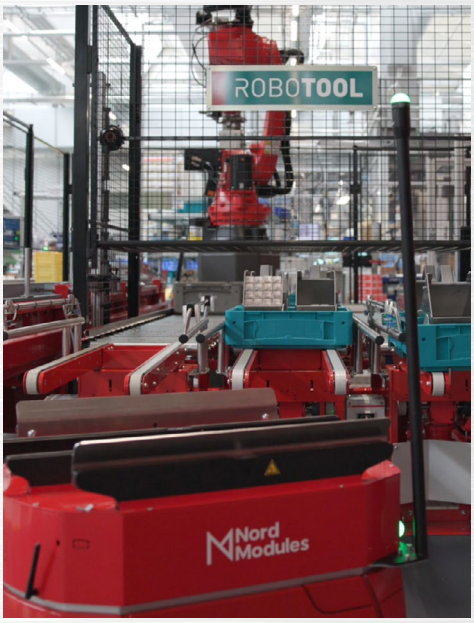
Automation with no manual handling

Launched in December 2022, the project was developed in collaboration with Danfoss Power Solutions, AutoStore system provider Element Logic, and RoboTool, one of OMRON's Integration Partners. In addition, OMRON Alliance Partner Nord Modules assisted in developing the mobile robot solution.

The project stemmed from Danfoss Power Solutions' desire to improve the working environment and especially ergonomics at the factory by minimising the need for manual lifting of heavy boxes in and out of storage. The traditional warehouse was replaced with an AutoStore system fully operated by robots, making much better use of the 860 square metres of production space.

Furthermore, thanks to a custom conveyor system consisting of a transfer cell, an industrial robot and the two OMRON mobile robots, parts move in and out of the AutoStore facility without being touched by human hands. The two mobile robots, named Egon and Yvonne after the couple in the famous Danish film series the Olsen Gang, transport items to and from the AutoStore system, where the industrial robot handles the loading and unloading.

In addition to the two mobile robots, OMRON also supplied an FHV7 smart camera that reads the codes on incoming boxes, enabling the AutoStore system to identify and place them correctly.



We were able to achieve this technically ambitious solution thanks to a strong team of skilled integrators and suppliers working closely together. And of course, we had an engaged and forward-thinking customer in Danfoss Power Solutions who encouraged us to push the boundaries of what's possible with these technologies,"

Clear and tangible gains

The integration of three layers of robotics has resulted in a high level of automation and provided Danfoss Power Solutions with a number of tangible gains.

The original objective of minimising repetitive work and thus improving ergonomics for employees has been achieved, along with increased productivity, better utilisation of floor space and a higher degree of automation. This enables Danfoss Power Solutions to quickly ramp up and down production depending on the number of incoming orders.

"We were able to achieve this technically ambitious solution thanks to a strong team of skilled integrators and suppliers working closely together. And of course, we had an engaged and forward-thinking customer in Danfoss Power Solutions who encouraged us to push the boundaries of what's possible with these technologies," says Kenneth Jochumsen, Robotics Account Manager at OMRON.

A scalable model for other manufacturing environments

According to RoboTool, the strong results at Danfoss Power Solutions show that similar solutions could easily be developed for other companies.

"*This is a solution that could easily be applied in other manufacturing environments. The combination of the different robot technologies has proven to be incredibly strong, and to me, it's a good example of how you can develop new and forward-thinking solutions by combining known technologies*," says Niels Hansen, Sales Manager RoboTool A/S.

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